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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/731,789	12/08/2000	Hideyo Okushi	200547US2	1445

7590

11/04/2002

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EXAMINER

DOAN, THERESA T

ART UNIT PAPER NUMBER

2814

DATE MAILED: 11/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/731,789

Applicant(s)

OKUSHI ET AL.

Examiner

Theresa T Doan

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 7-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-6 in Paper No. 5 drawn to the material of diamond semiconductor is acknowledged. Accordingly, claims 7-10 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

The traversal is on the ground(s) that the restriction requirement has not established that there would be an undue burden on the examiner if the restriction were not issued. This is not found persuasive because the embodiment of claims 7-10 would require different searches and is therefore an undue burden.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwarada et al. (5,420,879).

Regarding claim 1, Kwarada et al. teach diamond semiconductor having an exciton light-emission intensity characteristic (see abstract and related text column 2-5).

Kawarada et al. do not teach an exciton light-emission intensity characteristic that varies nonlinearly.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kawarada et al.'s device as a diamond semiconductor light emitting device in order to apply the device to a particular application. Note that terms merely setting forth intended use for, or a property inherent in, an otherwise old composition does not differentiate claimed composition from those known to prior art. In re Pearson 181 USPQ 642.

Regarding claim 2, Kawarada et al. teach that the exciton light emission is due to electron beam injection (column 2, lines 16-50).

Regarding claim 3, Kawarada et al. teach the exciton light emission has an optical wavelength range of 225 to 300nm (column 2, lines 16-28).

Regarding claim 4, Kawarada et al. teach the exciton light emission intensity increases rapidly in response to an electron beam above a threshold value (column 5, lines 1-23).

Regarding claim 5, Kawarada et al. teach the diamond semiconductor is of high quality sufficient to emit ultraviolet light at room temperature in response to energy injection (column 2, lines 38-42).

Regarding claim 6, Kawarada et al. teach the diamond semiconductor is an epitaxial diamond thin film obtained by diamond synthesis by means of a microwave plasma CVD method (column 2, lines 51-68 and column 3, lines 1-49).

Regarding the processing limitations recited in claim 6 (an epitaxial diamond thin film obtained by diamond synthesis by means of a microwave plasma CVD method), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa T Doan whose telephone number is (703) 305-2366. The examiner can normally be reached on 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WAEL FAHMY can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TD
October 28, 2002.


PHAT X. CAO
PRIMARY EXAMINER